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AMERICAN FOUNDATION
FOR THE BLIND INC.

# LOW VISION CLINIC

Office of Vocational Rehabilitation
Project No. 852-RD
July 1, 1961 to June 30, 1964

## FINAL REPORT

by

Morris J. Mintz, M.D., Project Director

Ernest M. Gaynes, O.D., Project Co-Director

Arnold H. Gordon, O.D., Associate

SINAI HOSPITAL OF DETROIT
6767 West Outer Drive
Detroit, Michigan 48235

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# SINAI HOSPITAL OF DETROIT
# LOW VISION CLINIC

The Low Vision Clinic of Sinai Hospital of Detroit differs from most such clinics in several ways. Its beginning was in itself different from most in that it developed from the interest in amblyopia held by several members of the Ophthalmology Section of the E.E.N.T. Division, rather than being sponsored by or the outgrowth of an Association or League for the Handicapped. The Low Vision Clinic was considered from the onset as an extension of services provided by the Eye Department of the out-patient department of a private general hospital.

The Low Vision Clinic differed at the beginning, and even now, from other clinics in its relations with and utilization of optometrists. The Office of Vocational Rehabilitation has recognized that most low vision facilities function best where a cooperative relationship with optometrists exists and states so in its instructions and suggestions to institutions contemplating the establishment of a low vision clinic with Health, Education and Welfare grant assistance. No such suggestion or advice was needed at Sinai, for Sinai Hospital since its establishment has had optometrists as members of its voluntary staff attached to the out-patient department. Optometrists have assisted the ophthalmology residency training program in the areas of refraction, the fitting of contact lenses and the ust of special optical devices. This interdisciplinary approach to aspects of functional visual problems helped provide an atmosphere receptive to the concept of visual rehabilitation through the establishment of a low vision clinic for the partially sighted.

For several years, prior to the establishment of the Low Vision Clinic, several of the staff ophthalmologists and optometrists encouraged the use and prescription of low vision devices by the ophthalmology residents where problems of impaired visual acuity were encountered. During discussions of these problems,

it became clear that the treatment of patients with low vision difficulties required some amount of special diagnostic equipment and a large assortment of optical aids. At this stage, Morris J. Mintz, M.D., and Ernest M. Gaynes, O.D., members of the voluntary staff, began to explore avenues which might lead to the acquisition of low vision equipment and supplies. This initial exploration served to create a new awareness of the extent and nature of the problems of the partially sighted. With this awareness came the realization that a low vision service or clinic would be only as successful as the completeness and comprehensive nature of its approach to what was the real problem of the partially sighted, that of visual rehabilitation. What started with the somewhat naive belief that a low vision clinic consisted of an eye service with a collection of low vision devices, became the concept that a low vision clinic must function on a team basis as part of a community team for rehabilitation of the partially sighted.

At this stage of planning, it was learned that the O.V.R., Department of Health, Education and Welfare, was prepared to assist sponsoring institutions to establish demonstration projects in the area of low vision clinics or services. An inquiry on our part brought responses from the Michigan Crippled Children Commission, through Dr. Edward Fitting and Mr. Paul Conlon, representing the State Office of O.V.R. They indicated that they were eager to help implement this much needed project in Michigan. A protocol for the clinic's operation was submitted and eventually approved. The clinic began functioning as a demonstration project July 1961 and continued under Federal support until June 30, 1964. It is now wholly sustained as a service of the hospital to the community.

The following announcement was sent to all ophthalmologists, optometrists, social agencies and schools who had any contact at all with the partially sighted:

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"Effective July 1, 1961, Sinai Hospital in Detroit, Michigan, is offering a special optical service to patients with low vision as part of the Shiffman Clinic out-patient program, and will be named Low Vision Clinic.

The program is being supported by a grant from the Department of Health, Education and Welfare, through the Office of Vocational Rehabilitation.

This is the first attempt in Michigan to utilize the team approach in the field of low vision service. It will be headed by a Board ophthalmologist. It will not only include ophthalmologists but optical specialists and a special medical social worker as well. The service which this team offers will be limited to careful refraction and the prescription of whatever optical aids are indicated. Information about sources of supply of the various visual aids will be available. Complete follow-up care will be offered to permit maximum utilization of the aids provided. A variety of optical devices may be offered to permit best utilization of residual vision and may include lenses of high correction, bifocals, half eye glasses, microscopic or telescopic lenses, doublet magnifiers, contact lenses, and hand magnifiers and variations or modifications of such aids.

Purposes for Establishing this Clinic:

1. To find if it is possible to improve vision in these low vision patients who have corrected visual acuity of 20/70, or less, in their best seeing eye with ordinary glasses, so as to transfer them from legally blind to economically productive individuals.

2. To improve vision in these patients so that (a) they can read; (b) they can be usefully employed, if possible, and (c) they can continue with regular schooling.

3. To establish such a service in the State of Michigan where no such service of any sort is at present available.

Referral Methods:

1. By State agencies:
   (a) Office of Vocational Rehabilitation
   (b) Michigan Crippled Children Commission

2. Shiffman Clinic patients.

3. By direct referral by an ophthalmologist or optometrist."

The philosophy under which the Low Vision Clinic acts was an attempt to see the partially sighted individual as a total person in his total environment. Rehabilitation was to be as complete as possible. To that end, we attempted to utilize the community resources available. The obvious ones immediately involved

were schools, public health sources and agencies dealing with the blind, but there were other resources we learned to utilize. The public utilities could perform a service if they were given the opportunity. Home and office lighting could be measured and improved. Telephones could be made easier to operate with enlarged numerals for their dials, changes in dialing equipment, like card dialing phones or the use of touch dialing phones. Appliances could be modified so the controls could be seen or felt, if necessary. In short, we conceived the Low Vision Clinic as the point at which visual environment of the partially sighted could be modified to permit the individual to function more adequately.

The prior work of such pioneers as Fonda, Kestenbaum, Louise Sloan, Hoover, Finebloom, Hellenger, Beir, DeAngelis, Neill, Stimson is acknowledged. We drew heavily upon their experience.

## Organization of the Low Vision Clinic

The personnel of the clinic consists of volunteer ophthalmologists and optometrists, ophthalmology residents, a social worker, an optical aids technician trained in orthoptics and the staff of the complete out-patient clinic as needed. Any laboratory or medical tests required can be performed.

The Shiffman Clinic, which is Sinai Hospital's out-patient department, serves only the medically indigent. A special exception was made in the Low Vision Clinic where medical indigency is not a requirement, and any partially sighted person may be seen.

During the period of grant support, no fees were charged any patient. Referrals are accepted from optometrists, ophthalmologists and State agencies dealing with the partially sighted whose clients have been certified as partially sighted. Patients cannot make direct application for services to the Low Vision

Clinic. The criterion for acceptance to the Low Vision Clinic is that the best corrected acuity of the better eye is less than 20/70. Occasionally, patients whose acuity is better than this are seen if a special need exists, such as a limited visual field.

The clinic is held Monday and Tuesday mornings. Appointments are made by mail or phone through the general out-patient appointment desk. On the day of examination the patient and parent, or patient and concerned members of the family, are interviewed by the social worker. A medical history is taken then by the ophthalmologist. This history and the social worker's report are used to crystallize the patient's prime visual needs. A medical examination of the eyes is then made by the ophthalmologist. Visual acuities are taken at ten feet, rather than twenty feet, and at fourteen inches, without and with the old prescription for each eye and then for both eyes together. Special attention is paid at this time to head tilt or vicarious head positions. Eye lids, cornea, conjunctiva are examined. The extraocular muscles are tested and any nystagmus noted. Cycloplegia is instilled when needed, and a refraction is performed. This is done either by the ophthalmologist or optometrist. The refraction is performed both with retinoscopy and subjectively. This is done at ten feet using charts containing numerals larger than conventional opto types. We are using one prepared by "Designs for Vision". For illiterates, E charts and picture charts are used. For near, Sloan cards, Keeler cards and E charts are employed. A special grouping of sample pages from telephone books, menus, adding machine tapes, theater programs, newspaper clippings, magazine clippings, have been prepared in booklet form.

Tentative dioptric values for reading aids, or magnification required, can be derived from the distance visual acuity by converting the usual visual acuity fraction, i.e., visual acuity of 20/200 = 10 diopters needed to produce equivalent 20/20 near point acuity. The smallest letters seen on Sloan and Keeler nearpoint

cards read at fourteen inches with the usual nearpoint corrections indicate what magnification or addition is needed to improve visual acuity to equivalent 20/20. On both Keeler and Sloan cards, this needed amount is indicated directly on the card.

We begin all trial of low vision aids at the nearpoint. Headworn devices are first tried. Lenses from a standard trial case are used where feasible. Full diameter aspheric lenses are preferred. This is because the patient with nystagmus or eccentric fixation has trouble looking through a small diameter lens. Where powers beyond the trial case are needed, microscopic lenses, such as those manufactured by American Optical Company and Volk Conoid, or Designs for Vision lenses are tried. Often the same power in each lens is compared. The patient is given the opportunity to choose from the different types of microscopic lenses.

Head loupes and jeweler's loupes may then be tried. Nearpoint telescopes are not demonstrated unless requested by the patient. This reason will be discussed later. Stand magnifiers may be demonstrated. Lighting requirements, such as miniature high intensity lamps and reading stands, are discussed and demonstrated. Where distance problem exists, certain telescopic aids may then be tried. Monocular telescopes of 2.5x are used for distances up to twenty feet, such as encountered in a classroom and for television viewing. This trial is carried out through the viewing of a chalk board at a ten foot distance, simulating the classroom. The 2.5x telescope may be used hand-held or clipped to the lens before the better eye. For greater distances, a 7 x 35 monocular or a 10x monocular or a Kestenbaum system is tried and evaluated. The Kestenbaum consists of a strong negative lens ground in a distance carrier in combination with a +3.00 diopter or +5.00 diopter objective lens, hand-held some ten to fourteen inches before the eye. This provides simple, variable focusing and is useful for a variety of

distances. It is especially applicable for aphakic individuals who need only remove their glasses and use the objective lens.

Light control with sun glasses or special filters is considered and evaluated for each patient.

When all optical testing is concluded, the fundi are then examined by the ophthalmologist. Tonometry and visual fields where appropriate or necessary are likewise done at this time.

As part of the clinic equipment, a complete loan bank of visual aids is maintained. There are stand magnifiers of 19 diopter and 29 diopter, loupes of several powers, microscopic lenses of 2x, 4x, 6x, 8x, 10x, 12x and 14x made up as spectacles, monocular telescopes of 2.5x, 7x and 10x. These are loaned for home use with an adequate deposit as security. Loaners are first used when reading additions of +16.00 diopters or more are required. The optical aids technician instructs the patient in the use of the loaner tentatively prescribed, with special emphasis on working distance, lighting, and the use of easels or stands.

After these trial sessions, a return visit is made for a final evaluation and prescription of the visual aid. Re-evaluation is made three months after the initial prescription of a low vision device. The referring doctor or agency is furnished a summary of the clinical findings. Contact with the school or employer, when necessary, is made by the social worker.

The optical aids technician performs other services, often teaching the patient to utilize peripheral or eccentric viewing. At times, she functions as an occupational therapist, helping in the tasks of sewing, typing, crocheting, etc., using the facilities of the Department of Occupational Therapy. Where amblyopia exanopsia exists in the remaining useful eye, pleoptic and orthoptic routines are often introduced by the optical aids technician.

Rehabilitation of low vision patients is dependent upon several factors. In general, the younger age group, beginning with children, is easier to handle. Any aid represents an improvement.

Patients who have always had poor vision adapt more easily to help than those individuals who have had good vision which has diminished.

Low vision patients with good peripheral vision are more easily helped than those with narrow fields.

Patients with bilateral hemianapia are a special problem and we feel further work in this area is in order. We have not had enough patients of this type to develop aids especially suitable for them. We are aware that frames with hemianopic mirrors are available but their adjustment and adjustment of a patient to their use is far from satisfactory. Often a patient's reaction is considered as a good result, whereas critical observation of the patient and his aid prove he cannot be helped by the aid as he thinks. We had one patient fitted with a special frame-mounted mirror and he stated that it helped him in walking along streets. However, we noted that the mirror was aimed upward and he could see nothing below ten feet when glancing through it.

Patients who have had good vision and have lost it are the most difficult to treat. Whatever improvement in visual efficiency is made, either for reading or distance, the complaint is usually made that it is not good enough - "I used to see better". The complaint for reading aids is that - "I have to read too close"; for distance aids - "but what good are they if I can't drive?"

Partially sighted patients are referred by vocational counsellors who ask us if we can improve an individual's vision so he can do his job better. These individuals do not necessarily wish to read. These often are persons whose education has been limited, and who work in service jobs. They usually prefer hand-held devices, such as magnifiers or spotting monoculars, clip-over devices if they are already wearing conventional spectacles. One man used a hand magnifier so he could

read the names on the diet cards on serving trays. Another man liked an inexpensive clip-over telescope which he could use for near for adjusting thermostats and for spotting people across rooms.

We have found that proper counselling is not always available for patients faced with loss of vision or impending blindness. For example, one of our patients, A.B., was a 34 year old accountant who had set up the complete accounting system for a small industrial plant. Diabetic retinopathy developed and A.B. was told he could keep his job if he wished but he felt he could not do it any more and trained someone else. When we first saw him, he had no job and the vocational agency was trying to fit him into one. With aids we made him read again at the first examining session. Unfortunately, a new vitreous hemorrhage erased his gains. On his second visit, we discussed the possibilities if he had remained at his job, and found he could have performed all the necessary functions of his job if he had hired any high school graduate to read figures for him.

We have had other patients in similar situations. A top level stylist in one of our auto companies kept his position in spite of visual loss, using visual aids which were made available to him.

In screening school children from special education classes, we have found five Braille readers who became print readers and began to attend regular classrooms. One of these patients was a Doctoral candidate in a College of Education whose entire training until this time had been in Braille. Low vision aids and three months of tutoring by the remedial reading staff at his college converted this young man into a print reader.

It is obvious that earlier screening and application of aids where indicated, in conjunction with visual perceptual training by educators, offers a significant opportunity to rehabilitate many who are now being educated as though blind. Pioneer work has been done in this field by Natalie C. Barraga.

In Michigan, cost of special aid readers, recorders and Braille writers to the college student for four years is estimated at $2,400.00.

Children with multiple handicaps are referred to the Low Vision Clinic. Some of these children do have a visual loss which can be helped with aids. Vision in some of these children cannot be evaluated because of other handicaps, such as deafness, speech problems, brain injury, and psychological disturbances. Some children are referred with supposed low vision who, once rapport has been established, prove to have adequate vision but cooperate poorly in the usual screening tests because their other handicaps are not taken into account.

Our Low Vision Clinic tries to keep in close touch with all community organizations who have any contact with the partially sighted. We consult with them, both on individual cases and on matters of policy. Included in this group are: Metropolitan Society for the Blind, Inc., Public Schools at all levels, the Rehabilitation Institute, Michigan State Medical Society, Michigan State Optometric Association, Office of Vocational Rehabilitation (Michigan State Social Service Commission), Michigan Crippled Children Commission, Michigan School for the Blind.

A good share of patients have been referred by Vocational Rehabilitation counsellors. At times, the counselor accompanied the patient so we could discuss all possible facets of the visual aid needed and the type of employment the client could perform with his limited vision. At other times, our clinic personnel contacted the Vocational Counsellor and/or employer to discuss and advise regarding the patient's visual problems at work.

There is a direct liaison with the Metropolitan Society for the Blind, Inc. They refer patients to the clinic when they think supposedly blind individuals have residual vision. We in turn refer cases to them when special services are needed which we cannot furnish.

We have established an especially close relationship with the Wayne County

Intermediate School District, Special Services Department, as consultants in vision. We attend regular meetings with their staff to help establish policy regarding education of the partially sighted. We also have screened the students in their Blind Program and discovered several who could be given visual aids so they could attend regular classrooms.

The staff of the Low Vision Clinic has participated in the following community educational activities:

1. Lecture to Ophthalmology Staff of University of Michigan Medical School.

2. Seminar participation at School of Public Health and Department of Physical Medicine, University of Michigan Medical School.

3. Seminar at Gull Lake, Michigan, arranged by State Superintendent of Education, on Visual Care of the Partially Sighted Child.

4. Television Program on Channel 56 on the Sinai Low Vision Clinic. This program was taped and is available as a 16 mm sound film lasting 28 minutes. This film has already been shown to several service groups.

5. Wayne State University Advanced Workshop for teachers of the partially seeing conducted by Helen Gibbons, M.A., Consultant in Education for the National Society for the Prevention of Blindness, Inc.

6. Michigan Crippled Children Commission workers at a meeting in Lansing, Michigan, for orientation about how our clinic can help partially sighted children.

7. Visit to Hadley School, Saginaw, Michigan, to observe and consult regarding partially sighted children, and integration of visual aids with perceptual training.

8. Three students have used the Sinai Low Vision Clinic as a basis for doctoral theses. Copies of these have not yet been received.

## SUMMARY

The Sinai Low Vision Clinic has demonstrated (1) that such a facility serves an important community need; (2) that a significant number of partially sighted individuals can achieve additional rehabilitation; (3) most patients can be helped with only one clinic visit; (4) most visual aids need cost no more than conventional glasses; (5) children adapt much more easily to visual aids than adults; and (6) individuals with acquired visual deficiency are more resistant to aid and require more clinic visits.

## CONCLUSIONS

1. Visual rehabilitation must be a team effort of all facilities and personnel needed in a particular case: ophthalmologist, optometrist, case workers, optical aids technician, educator, psychologist, vocational counsellor, public health nurse. The end goal must constantly be kept in sight: social, educational and vocational rehabilitation.

2. A social worker is a very valuable adjunct to a Low Vision Clinic.

3. Rigid employment standards using Snellen acuities for the partially sighted have no meaning. Many partially sighted individuals really do not require aids. They are only trying to meet artificial acuity requirements.

# RECOMMENDATIONS

1. There must be more "propaganda" education to ophthalmologists to refer partially sighted individuals for special care sooner.

2. Ophthalmologists and optometrists can aid their older patients by gradually increasing the reading correction as ocular pathology progresses.

3. Where possible, partially sighted persons can best be served in a Low Vision Clinic in a general hospital setting where a complete team approach can be utilized.

4. Further research in visual aids should be directed toward electronic magnification and utilization of other sensorial modalities.

## TABLE I

## PATIENT VISITS NEEDED FOR DISPOSITION

| | NO. OF PATIENTS | NO. OF VISITS |
|---|---|---|
| | 187 | 1 |
| | 40 | 2 |
| | 15 | 3 |
| | 9 | 4 |
| | 5 | 5 |
| | 2 | 6 |
| | 0 | 7 |
| | 2 | 8 |
| | 1 | 9 |
| | 7 | 10+ |
| Total | 268 | |

## TABLE II

## TYPE OF AID DISPENSED

| Type of Aid | | | No. Dispensed |
|---|---|---|---|
| Distance Prescription (regular) | | | 24 |
| Near Prescription (regular) | | | 18 |
| Bifocal with high add | | | 36 |
| 2.5x Monocular distance telescope | | | 33 |
| 7 x 35 Monocular distance telescope | 8( | | |
| 6 x 20 Monocular distance telescope | 8( | = | 30 |
| 10x Monocular distance telescope | 14( | | |
| Kestenbaum Telescope System | | | 2 |
| Aspheric Plastic Microscope Lenses | | | 26 |
| Volk Conoid | | | 13 |
| Full diameter near microscopic lenses | | | 5 |
| Miniature Telescopes | | | 1 |
| Stand Magnifiers | | | 14 |
| Jewelers Loupes | | | 6 |
| Contact Lenses | | | 2 |
| Bar Reader | | | 1 |
| Sunglasses | | | 5 |
| Lighting Evaluation | | | 4 |
| Mobility Training | | | 1 |
| | Total | | 231 |

## TABLE III

## AIDS PRESCRIBED

| | Approx. Cost | No. | Percentage |
|---|---|---|---|
| Standard Glasses | $ 25.00 | 44 | 20% |
| Moderately expensive | 45.00 | 30 | 16.2% |
| Expensive aids | 75-125.00 | 39 | 17.8% |
| Very expensive aids | over 125.00 | 8 | 3.6% |
| Inexpensive aids | under 15.00 | 89 | 40.5% |
| No cost aids | 0 | 4 | 2% |

(Over 80% of aids cost less than $45.00)

## TABLE IV.

## CAUSES OF POOR VISION

| | |
|---|---|
| Cornea | 11 |
| Lens | 33 |
| Vitreous | 2 |
| Nerve | 27 |
| Retina | 115 |
| Choroid | 11 |
| Suppression | 1 |
| Optic Pathway | 11 |
| Refraction | 6 |
| Iris | 1 |
| Total | 218* |

## TABLE V

## CAUSES OF POOR VISION

| | | | |
|---|---|---|---|
| Albinism | 16 | Retinal Detachment | 5 |
| Cataract | 33 | Brain Abscess Sequel | 1 |
| Retinitis Pigmentosa | 8 | Brain Injury | 1 |
| Retrolental Fibroplasia | 21 | Corneal Scars | 3 |
| Congenital Malformation | 16 | Aniridia | 2 |
| Chorioretinitis | 25 | Bilateral Eccent. Fixation | 1 |
| Trauma | 1 | Cerebral Palsy | 2 |
| Glaucoma | 1 | Congenital Coloboma choroid & retina | 1 |
| Diabetic Retinopathy | 10 | | |
| Optic Atrophy | 29 | Corneal Dystrophy | 2 |
| Macular Degeneration | 56 | Exposure Kerotitis | 1 |
| Congenital Nystagmus | 16 | Marfans Syndrome | 1 |
| Myopia | 13 | Keratoconus | 1 |
| Microcornea | 1 | Conversion Anxiety Neurosis | 2 |
| | | TOTAL | 283* |

*Totals are not the same because some patients had more than one etioloty.

# APPENDIX

# SINAI HOSPITAL OF DETROIT

# LOW VISION CLINIC

## SOCIAL SERVICE ACTIVITIES

The Social Service activities of the Low Vision Clinic have been utilized in two areas. The first function is the service dealing directly with the patient and his family. The second function is the continuing public relations aspect in constantly interpreting the role of the Clinic to interested agencies and organizations.

The work with the patient begins on the patient's first visit to the Clinic. The patient is interviewed regarding his expectations of low vision service, what he has been told by the referral source and his own evaluation of his visual needs. With children, the interviewing is done on two levels, one with the parents and the other with the child. With younger children, the attempt is made to assess the degree of cooperation one might expect, while with older children an attempt is made to get the child's assessment of his own problem and what aid he feels he needs. This interviewing is done prior to the patient's examination by the doctor and the information is given to the doctor before he sees the patient.

Generally, it can be ascertained that the patients are somewhat hazy as to what to expect in terms of service from the Low Vision Clinic. One father was very concerned in knowing that the Clinic was a new organization because he felt that this meant the Clinic would be "experimenting" with his child. Since he was able to express his anxiety, it was possible to give him a proper understanding of the Clinic functions. Some patients have expressed the idea of surgery being performed in the Clinic or some new methods, not anything being named, being able to be done here. Insofar as these illusions are expressed, an attempt is made to dispel them prior to the doctor's examining the patient. Other patients have expressed the idea of coming for low vision service since they had been informed of the Clinic and they felt they must explore every avenue possible to see what help is available. The interpretation of the Clinic's function is always given to the patient with the emphasis on the Clinic attempting to use whatever vision the patient possesses to the best means possible. If the patient grasps that concept, it is felt that he is somewhat prepared for a realistic appraisal of his visual needs.

Following the doctor's examination of the patient, Social Service plays a role in reinforcing the doctor's recommendations. For example, if a specific aid has been prescribed for a youngster to use in school, this is discussed with the parent and the youngster, pointing out specific areas where it might be of greatest value. Aside from re-interpreting the doctor's suggestions with the patient and family, follow-up reports are sent to the school indicating what has been prescribed and how it might best be used. If an agency has been responsible in initiating the referral, a report is sent to them following the patient's visit.

During the patient's visit, an appraisal is made of the overall needs of the patient. For example, if the patient mentions being able to see better in the Clinic than in his home, some discussion of lighting is undertaken with him by the examiner. This might be followed up by Social Service in terms of referring a

special representative from Detroit Edison to go into the patient's home with concrete suggestions about what is the best lighting. Similarly, if a discussion comes up of different materials for reading, the patient and his family is made aware of the different sources available to them in the community. The Clinic has obtained many items ordered from the catalogue of the American Foundation for the Blind for different household uses, and should a patient express a need, for example, of a needle threader, this could be shown to the patient in the Clinic. What is learned from one patient is used as an added bit of knowledge to use with the next patient. In working with the patient, it has been found that he is particularly receptive to knowing what other patients with similar visual difficulties have done under certain circumstances. One patient's way of solving something might not be the way another one might solve his problem but in some instances, it opens up an avenue for further thought.

When a patient comes back to the Clinic for a second or third visit, the Social Service contact with him is in the area of how he has used a particular aid. If the aid has not been successful, there is discussion around the difficulties. Again, in the return visits, what the patient expects of the Clinic and what the patient wants for himself is thought through. If any community resource has been suggested on the previous visit, such as a visit by Detroit Edison, the recommendations are discussed.

Social Service maintains a relationship with the Optical Technician in terms of her work with the patient and the effect of emotional factors towards successful or unsuccessful work. One patient that the Optical Technician was working with was not making much progress and it was felt that an appraisal should be made of her ability to get involved in working with low vision aids. The suggestion, therefore, was made by Social Service to the patient that a referral to Family Service Society might be of value to her now and that later if some of her personal problems are resolved, she might be able to more freely involve herself with the low vision work. With another patient, whom the Optical Technician was working with more successfully, the Social Service interview was on the basis of the patient's needing supportive help in terms of her ability to accept her visual handicap and to help the patient see what progress she had made in the Clinic. This particular patient was very rewarding to work with, in that she was able to use low vision services to the fullest extent and was able to see herself making progress towards her next goal, which was some mobility training. Previously, she had been unable to feel she could get involved in any mobility work and had been quite dependent upon others.

Follow-up has been done by letter and telephone of patients who were seen from a period of six months and more ago. The inquiries to these patients are structured along the lines of how they have used the aids that have been prescribed, to what advantage they have been or whether they have been used and have not been of advantage. This information is then given to the doctors for their use in follow-up work with the patient.

Concerning the public relations aspect of the Social Service job, there has been a follow-up made with Wayne State University and their counsellor for the handicapped. The counsellor has observed the Clinic, has referred patients, and there has been a working relationship established with her. With the opening of a new agency, The Metropolitan Society for the Blind, in October 1962, a working relationship has been established with them. Patients have been referred by them

for low vision help and in turn, their agency has been used as a source of information for certain needs expressed by patients. Inquiries are constantly being made by Public Health Nurses in many of the outlying areas about specific situations of patients and whether the Low Vision Clinic would meet these needs.

Contacts have been made, both by letter and in person, by people working in special education and occupational therapy in Saginaw about the benefits of the Low Vision Clinic. A few patients have been referred by them and there are more waiting the doctor's evaluation. It is planned in the future to visit Saginaw to see how the partially sighted children are being educated there, since there has been a great deal of interest manifested by them, specifically, what aid the Low Vision Clinic can offer these children. The problem of the brain-damaged child was of specific interest to this Saginaw group and is a problem that offers a challenge to the low vision field, as well as to other fields in education and rehabilitation. At this time, the thinking about what Low Vision can do in this field is certainly in the preliminary stages but following a visit to Saginaw, which is planned by the Low Vision staff, the information and observations obtained there might well lead into further exploration in this area.

With the addition to the staff of a teacher of the partially sighted, the steps are being taken now for follow-up work by her in the Detroit Schools of the patients that have been seen here. The Social Service aspect of her follow-up work is one in which the knowledge of the patient obtained in the Low Vision Clinic is pooled with what knowledge she obtains from the school. A much more complete picture of the child will be obtained through this way, and how to more intensively implement the low vision recommendations is one aspect of her role.

To make the best use of Social Service facilities, the functions of Social Service must continually be flexible to meet the needs as they arise. The determining criteria would seem to be of how much help has the patient been given and can he be helped more.

Clare Silberman

Social Worker
Low Vision Clinic

2/25/63

SINAI HOSPITAL OF DETROIT
THE SHIFFMAN CLINIC

## OPHTHALMOLOGY REFERRAL FORM

Family Name: Patient's Name: Case No.

Referred by: Date of Request:

Age:

CHECK ONE

Orthoptic ☐
*Pleoptic ☐
Low Vision ☐
Tonography ☐
*Fundus Photog. ☐

History:

Ophthalmic Exam:

Diagnosis:

Reason for Referral:

Analysis Only ☐
Perform Indicated Therapy ☐
Other ☐

*= DILATING DRUGS ARE USED FOR PLEOPTICS AND FUNDUS PHOTOGRAPHY.
IF THERE ARE CONTRA-INDICATIONS, PLEASE NOTE BELOW:

OPD-21H
Rev. 2/20/65

EXCERPT from Journal of Michigan State Medical Society
February, 1964

"AID TO THE BLIND"
by: Dean Bentley, M.D., Cadillac, Mich.

"We are sometimes confronted with a patient who is not totally blind but who is seriously handicapped visually. The Shiffman Clinic Out-Patient Program of the Sinai Hospital in Detroit maintains a Low Vision Clinic where a variety of optical devices may be offered to permit utilization of residual vision. This includes special lenses, telescopic lenses, doublet magnifiers, contact lenses and any other such aids as might be beneficial. There is apparently a charge for this service; however, if your patient is unable to pay, then arrangements can be made through the Office of Vocational Rehabilitation or the Crippled Children's Commission."

Article taken from: SINAI BULLETIN
Spring, 1964

# "LOW VISION CLINIC - A PRELIMINARY REPORT"

by: Morris J. Mintz, M.D.*
Ernest M. Gaynes, O.D.*

Magnification through telescopic or microscopic devices has long been used by ophthalmologists and optometrists as a means of improving visual acuity when the routine correction of refractive errors is not sufficiently effective.(1) Despite the general knowledge that magnification provides a means of visual rehabilitation and that a great variety of magnification devices of all sorts exists, it was apparent to us that not enough attention was being paid to those patients who might benefit from some form of magnification.(2,3)

Those few institutions and clinics which had established sub-normal vision departments or low vision clinics varied in their reports of which aids were most efficient, or which type of patient either profited most from aids or best accepted their use.(4,5) The support of the Michigan Crippled Children Commission Prevention of Blindness Program, and of the Michigan State Division of Services to the Blind, enabled us to secure for Sinai Hospital a participating grant from the Office of Vocational Rehabilitation of the Department of Health, Education and Welfare. This participating grant permitted the establishment of a Low Vision Clinic as a Research and Demonstration Project. The Staff Executive Committee and the Board of Trustees of Sinai Hospital recognized the community service that such a clinic could offer and approved its organization as a subdivision of the Section of Ophthalmology. The clinic began functioning July 1, 1961.

The Low Vision Clinic was conceived as having three objectives. The first was to provide therapy and visual rehabilitation through magnification for patients. The second was to evaluate magnification devices for distance and near vision and to determine which patients would adapt to the many types of magnification aids. The third was to study what relationships existed between the age of the patient and the duration of poor vision, the type of disease causing poor vision, and the acceptance and degree of benefits obtained from low vision aids.

The affected population from which the Low Vision Clinic could secure its patients is extensive. It is estimated that there are 55,000 partially sighted individuals in the Detroit Metropolitan area alone. The criterion for low vision in this clinic is that the best corrected vision in the better eye is not more than 20/70. Patients are accepted upon referral only from ophthalmologists, optometrists, or rehabilitation agencies. An individual patient may not apply for treatment.

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*Section of Ophthalmology, Division of EENT
Sinai Hospital of Detroit

The sponsoring agencies have been very helpful in referring patients and making known the existence of the clinic. Additional patients for study have come from the metropolitan school systems through the department of special education, and the Michigan Department of Public Health, Division of Blindness Prevention. In addition to the private patients of ophthalmologists and optometrists, many selected individuals are referred directly from the Department of Ophthalmology of The Shiffman Clinic, Sinai Hospital of Detroit.

The clinic obtained for trial purposes projection magnifiers, microscopic lenses, telescopic lenses, hand magnifiers, reading stands, special test charts for near and far vision testing, and special reading material.(6) Contact lenses are used alone or in conjunction with other devices. The usual ophthalmic diagnostic equipment was already present in the clinic.

The principal distance aids evaluated were the Kollmorgen and Univis telescopes, 2.5x Sport Glasses, 6 x 30 Monoculars, and the 10x30 miniature Monocular. Head-worn near aids were considered from Volk Conoid lenses, American Optical aspheric microscopic lenses, and the higher powers of a Tillyer ophthalmic trial set. Hand-held magnifiers were tried from a variety which included the simplest of jeweler's loupes to the most complex of plastic aspheric cataract stand magnifiers.

It was planned from the outset that in addition to the professional team of ophthalmologist and optometrist, a social worker and an optical technician would also be used. The social worker would serve in gathering social, economic and some medical history and background, as well as act as liaison between home, school, agencies and the clinic. The optical aids technician would teach the patient to use the new aids or aid.

About 400 patients have been seen. Detailed statistical analysis is being made of case histories and results of magnification aids. These figures are not yet available, but the techniques worked out for patient examinations and some definite impressions from the results obtained follow.

The clinic was in operation only a short while when it was learned that it was essential that adequate time be made available for the study of each patient. Multiple appointments are given if one visit is insufficient. The patient is constantly given the impression that we are doing our best to help him, even though our best is not always enough. This helps create patient involvement with his visual problem and many are again encouraged to make the most of their residual vision. Family and friends of the patient often tell us how much we have helped the patient to "see" even when we are unable to improve his visual efficiency. These patients receive a psychological lift from the interested attention they receive and while not measurably aided by any objective evaluation, we nevertheless feel that this is an important and valuable facet of the Low Vision Clinic's work.

The first visit of the patient is preceded by obtaining as complete a medical history as the referring doctor or agency can provide. The staff social worker interviews the patient and his family, both to supplement the history and to determine patient and family attitudes concerning the visual disability. The information is reviewed before the patient is seen for professional evaluation.

The examination is conducted in a purposefully unstructured manner. It begins with observing the patient's entrance into the refracting room. Must he be led? Does he bump into furniture? Does he head straight for the examiner or the examining chair? How does he hold his hand as he walks? Does he look about in an inquiring manner?

With the patient put at ease, the examiner begins to gather his own data. Questions are directed to learn how the patient operates visually. "When were you last able to read?" "Do you use glasses to read, or take them off?" "Do you use any magnifying lenses?" "Did you bring them with you?" "How long can you read without tiring?" "How much rest do you need before you can read again?" "Is there any special visual problem with which you would like us to help you?" At this point, we begin to establish the realistic levels of visual improvement that might be expected. The impossible is immediately spiked. Driver's licenses cannot be obtained, although one patient with less than 20/200 vision couldn't understand why not. He had shot a deer the previous season with a telescopic sight on his rifle!

A complete eye examination is then performed. An attempt to get some quantitative measure of visual acuity at distance is made. The usual test distance is 10', or closer if necessary. Visual acuity at the accustomed reading distance with the patient's own glasses, and with none, is taken using specially designed reading cards.(7) Either the Sloan or Keeler cards are used, both of which indicate from the size of letters read, what magnification will be needed for the patient to read newsprint.

A refraction is then done. Retinoscopic findings are used and refined subjectively for a 10 foot testing distance. Very frequently, a full diameter telescope of 2.2x magnification is used in conjunction with the subjective refraction to increase the sensitivity of observation of the patient. This permits the best possible refraction to be performed. With the best distance prescription in place, the reading prescription is then determined. Fonda's method of using the corrected distance visual acuity as a guide is used.(8) The inverse of the visual acuity indicates the addition in dioptric power which must be added to the distance spectacle correction to permit newsprint to be read; e.g. a V.A. of 20/100 would indicate the need of a +5.00 diopter reading addition. The patient is permitted to read at any distance he wishes or is able. Generally, the minimum lens strength which allows small print to be read is used. This permits the patient to have the largest visual field and the greatest working distance possible. Fundus and slit lamp examinations are left to the last so that retinal blanching because of the use of strong light will not adversely affect the patient's visual acuity.

Reading very closely presents special problems. Of great value is a reading stand or adjustable table or desk top so that the reading matter need not be supported in the hands. This is especially important in the older age group whose hands and arms tire easily. Lighting is also important and this fact is pointed out to the patient. Most patients need more light than normal, although a few suffering from retinal degeneration need less light, in which case absorptive lenses may be made part of the final prescription.

If the examination has progressed smoothly and we feel the patient can be given a visual aid, it is prescribed at this point. If there is any question of adaptation by the patient to the visual aid chosen, or if there is a special problem involved such as typing, music, or machine sewing, he is turned over to the optical

technician for training. The technician assists the patient in learning to use efficiently the visual aid under consideration. The distance from the eye to the material being viewed is kept constant with the use of some sort of reading stand. An adjustable light stand is used and the patient is shown the importance of correct placement and quantity of light. Music, typewriting or similar tasks may require a different visual aid or reading stand, and these are deomonstrated and their use taught. As many training sessions as needed are given to the patient. The patient is then returned to the original examiner and a final prescription of visual aids and appliances required is given.

Special problems of corneal opacities or irregularities invite a trial of contact lenses.

Various community agencies are available which can further aid the patient and liaison is established through our social worker. The Department of Special Education, Detroit Public Schools, helps maintain a follow-up on children. Specialized help for some patients can be had at the Rehabilitation Institute and the Metropolitan Society for the Blind. The State Department of Social Welfare, Division of Services to the Blind, provides its services where necessary to secure vocational guidance, job training, or special education. The public utilities have been helpful in modifying appliances so that dials can be read, or marks made for particular settings. Lighting surveys and recommendations can be secured in the patient's home or place of employment. Even a special large dial for the telephone can be installed at a nominal cost.

Our preliminary experience with over 400 patients is that for individuals whose visual acuity is at least 20/400, and their peripheral visual field is at least about 15°, newsprint, textbooks, bibles and letters can be read with visual aids. Some of these patients can receive some form of improvement in their distance vision as well. For the older group, this degree of improvement provides an increase of self-esteem and feeling of independence. It is less likely to result in changes of vocation or employment status, but creates a new attitude and often a more realistic acceptance of their visual handicaps.

The younger age group can be helped to receive their education in a more normal fashion, independent of the need of special textbooks, special tests, or other unusual teaching situations. They can adapt better socially with their increased independence. To help our patients, prejudicial or over-protective viewpoints held by family, teachers or employers often must be altered. When a child is made to read a 20/20 line of letters, or his name written on a blackboard, even if it is with the help of a telescopic lens, the parent or teacher present cannot help but be amazed. An awareness of the child's visual potential is appreciated for the first time. The effect on a child upon accomplishing a visual task never before experienced can be shared by everyone who sees the sudden radiance on the youngster's face.

Society benefits economically by directing these individuals into gainful employment. Not only do they add to the gross created productivity of their country but they earn wages from which they pay taxes. The opposite option would be a relief subsidy from other taxpayers.

The teaching aspect of this project consists in the presentation of a great variety of visual disturbances and the pathology causing them to our senior medical students, interns and residents. The eye residents acquire a proper concern for low vision problems and a more positive approach to their management.

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# "AN OUTPATIENT CLINIC IMPROVES VISION"

## legally blind patients are being transformed to economically productive individuals through the use of visual aids

By: Henry Gothelf*

About half of the approximately 750,000 partially sighted people in the United States, in the acuity range of 20/70 to 3/200, may benefit from some type of low vision aid. Since low vision is often recognized as a medical problem, the trial of aids should be included as part of an ophthalmological examination. In recent years technical advances in low vision aids have made them increasingly simple and practical for qualified personnel to prescribe for patients with partial sight.

In July, 1961, Sinai Hospital of Detroit offered a special optical service to patients with low vision as part of its regular outpatient program in a "low vision clinic". The program is supported by a matching grant from the Department of Health, Education and Welfare, through its Office of Vocational Rehabilitation (recently renamed Vocational Rehabilitation Administration). Referrals are made by the state Office of Vocational Rehabilitation, the Michigan Crippled Children's Commission, direct referral of ophthalmologists and optometrists, various health and welfare agencies, and public schools in the State of Michigan.

The clinic was established to determine whether it is possible to improve vision in patients who have corrected visual acuity of 20/200 or less in their best seeing eye with ordinary glasses and thus transform them from legally blind to economically productive individuals by making it possible for them to (a) read; (b) be usefully employed, and (c) continue with regular schooling. The low vision clinic team is headed by a board-certified ophthalmologist and includes an optometrist, a visual aids technician, a social service worker, an optician, a teacher of the visually handicapped, and a vocational rehabilitation counselor.

Clinic service is limited to careful refraction and the provision of the optical aids indicated. Complete follow-up care is offered to permit maximum utilization of the aids. Various optical devices are available to permit maximum utilization of residual vision and may include lenses of high correction, bifocals, half eye glasses, microscopic or telescopic lenses, doublet magnifiers, contact lenses, and hand magnifiers.

The patient's concern may be expressed by this typical comment - "I don't really know why I am here - I have a doctor and I'm sure he has done everything possible for my vision. What help can you give me here that my doctor cannot?" The answer, in terms of visual aids, is that while these aids can be fitted in a private office, the total care of the visually handicapped patient is more comprehensively handled by a low vision team in a clinic setting.

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*Mr. Gothelf is assistant director,
Sinai Hospital of Detroit,
Detroit 35, Mich.

CASE STUDIES REPORTED. In the clinic, the ophthalmologist makes a complete examination. The optometrist aids with a complete refraction and trial of visual aids and appliances. When an aid has been selected the technician teaches the patient how to use it effectively. The social worker obtains the social history of the patient and does the follow-up work, giving particular attention to the adjustment of the patient after he gets the visual aid and the needed liaison with community agencies. The teacher of the visually handicapped helps in evaluating progress of the patient, especially those in school, in solving study problems, in determining the potential of Braille as an adjunct, and in structuring the type of curriculum that may be most useful. Patients are referred to opticians located most conveniently in their homes and, in many instances, the opticians call for further clarification about aids that have been prescribed. Vocational rehabilitation counseling is handled through the State and County services, with the social worker keeping in close contact with what is being planned for the patient.

The idea of dispensing low vision aids "over the counter" should be discouraged. Without complete understanding of an aid and its meaning to the patient it can quickly wind up in a bureau drawer. If a patient has never become involved in attempting to work properly with the aid, or has never understood what the aid will or will not do, the patient may become discouraged and not use it.

A patient comes to the low vision clinic for an over-all evaluation of his visual needs. There is time there - time to talk of the visual difficulties and what they have meant, whether his visual condition is congenital or adventitious, and to ascertain how realistic are his goals. The parent of a visually handicapped child needs to talk of the problems being encountered in areas such as school, home and play situations, and the general atmosphere that pervades the low vision clinic is one of "there is time - there is hope - there are limits." The interpretation to the patient is that the clinic wants to help him use whatever vision he possesses to the maximum of his ability.

For many patients the low vision clinic serves as a "second chance clinic". Some patients have not had their eyes examined in years and have accepted their impaired sight with no thought that they might be able to use their limited vision more efficiently. Some examples:

E.M., a man in his sixties had dropped his legal practice for a year following a retinal hemorrhage. When seen in the low vision clinic he was encouraged to discuss his visual needs in his profession and was able to state that the visual part of his job was limited since most of his work was in the courtroom trying cases. For the visual aspects of his job, help was provided by an 8x lens and an adjustable reading stand. The re-evaluation of his visual needs on the job, combined with the use of optical aids, enabled him to return to the practice of law.

D.S., age 17, male. Diagnosis pigmentary macular degeneration. Visual acuity no better than 4/200 corrected. This boy was a good student and plans to continue in college. He had glasses prescribed but has never worn them. He had never used a visual aid of any kind. Last fall, he had a rifle fitted with a telescopic sight and shot a deer during hunting season. He gave a history of reading fatigue after only 20 minutes, with a recovery time of almost two hours. When fitted with a +24 diopter glass, he was able to read for 40 minutes without any sign of fatigue.

B.R., age 16, attended a school for the blind. His right eye was injured in a gun accident and his left eye remained amblyopic. With pleoptic treatment his visual acuity improved to 20/100 and he was able to read text book material for his grade slowly. He never advanced before this reading ability and actually receded. The social worker uncovered the social reasons which probably accounted for his lack of further progress. In summary, the patient seemed to fear leaving an institution where he felt very important and did not wish to go out and struggle with his fears.

As a patient progresses, he frequently is found to need more than one aid. As patients become familiar with the purposes of the clinic, this concept of multiple aids is accepted. The tendency there has been to prescribe inexpensive, unsophisticated aids such as simple magnifiers and simple telescopes whenever these will suffice.

An important effect of locating a low vision program within the confines of Sinai Hospital has been the education of professional personnel, particularly interns and residents, to the problems of low vision patients. The problems become familiar and the house staff become aware of them as situations to recognize as correctable when they go into practice.

More knowledge of the field of low vision is needed by the general public. Many people come to the clinic with their hopes built too high from reading articles about the tremendous changes created by low vision aids and find it hard to accept the limits of these aids. The patient who can be taught to understand the limitations can be helped more than the one who has the false hope that something miraculous will restore his vision. There can never be a standard prescription for any patient in a low vision clinic - each patient must be treated as an individual with his visual potentials, his disabilities and his personality which will either help or hinder his success with low vision aids.

Article taken from: THE NEW OUTLOOK
February 1964

# "WHY A LOW VISION CLINIC?"

By: Arnold H. Gordon, O.D.
Clare Silberman, M.S.W.
Morris J. Mintz, M.D.
Ernest Gaynes, M.S., O.D.

"I don't really know why I am here. I have a doctor and I'm sure he has done everything possible for my vision. What help can you give me here that he cannot?"

This is the type of comment frequently made by the patient visiting the low vision clinic.

The answer, in terms of visual aids, is that while it is possible to fit these aids in a private office, the total care of the visually handicapped patient is best handled in a clinic where he has the help of a team of specialists - an ophthalmologist, an optometrist, a visual aids technician, a social caseworker, an optician, a teacher of the visually handicapped, and a vocational rehabilitation counselor.

Such a team works together in this way: The ophthalmologist gives a complete medical ophthalmological examination, looking for possible medical and surgical treatment that may be indicated; the optometrist aids with a complete refraction and trial of visual aids and appliances; the technician, when the aid is decided upon, helps to teach the patient how to use it; the social caseworker obtains the social history of the patient, follows up on the adjustment of the patient after he receives the aid, and handles liaison with other agencies; the teacher of the visually handicapped advises the patient, (especially if he is in school), about his study problems; the optician to whom the patient is referred in may instances, contacts the clinic for further clarification on aids that have been prescribed; vocational rehabilitation counseling is handled through state and county services and the social worker keeps in close contact with the vocational rehabilitation center to see what is being planned for the patient.

The idea of dispensing a low vision aid over the counter is questionable. A quickly dispensed aid may end up in a bureau drawer unless the patient has a complete understanding of it and its meaning to him. If he has never become involved in attempting to work properly with his aid, or has never understood what it can or cannot do for him, he may quickly become discouraged and give it up.

The general atmosphere in a low vision clinic should be one that conveys the idea that "there is time; there is hope; there are limits." The interpretation to the patient is that the clinic wants to help him use whatever vision he possesses to the ultimate within his ability. It should be stressed that we cannot perform miracles - nor can anyone else.

When a patient comes to the low vision clinic he geta an overall evaluation of his visual needs. He has time to discuss his visual difficulties; what they have meant to him; whether his visual condition is congenital or adventitious; and he can be helped to ascertain whether or not his goals are realistic.

The parent of a visually handicapped child can talk over the child's problems in such areas as schooling, home life, and play situations.

For many patients the low vision clinic serves as a "second chance" clinic. Some of them have not had an eye examination for years, and have accepted their decreased vision with no thought that they might be able to use what is left more effectively. For example, Mr. M., a man in his sixties, had dropped his legal practice for a year following a retinal hemorrhage. When he was seen in the clinic he was encouraged to discuss his visual needs in his profession. He explained that the visual parts of his job were limited since most of his work was in the courtroom - trying cases.

For the visual aspects of his job he was helped with an 8x lens, and an adjustable reading stand. The re-evaluation of his visual needs on the job, combined with the use of an optical aid, enabled him to return to his law practice.

The following case material will illustrate some of the concepts mentioned. Mrs. B., a woman in her early thirties, divorced and the mother of two children, had completed a year of college work when she began having eye difficulties. The diagnosis of her condition was choro-retinitis and optic neuritis. Mrs. B. had been trained under the auspices of the Division of Service to the Blind as a medical dictaphone typist. She had been referred to the low vision clinic for possible help with the use of visual aids.

On her first visit in October of 1962, Mrs. B. presented herself as an attractive, well-groomed woman who displayed definite hostility towards the clinic, the referral agency, and the world in general. She was angry that, having completed her typing course, the agency had been unable to find her a job. The stumbling block visually was her inability to read a medical dictionary. She felt her visit to the clinic was a waste of time; it was quite a distance from her home, and she showed her resistance by breaking several appointments before finally coming. Her attitude was, "What are you going to do for me?" She expressed her anger and frustration to the social worker and the examining doctor.

On her second visit some lenses were tried and Mrs. B. found she could read fairly well with an 8x aspheric reader before the left eye. This lifted her spirits considerably and she accepted the idea of working with the visual aids technician in practice sessions in reading. She began her practice work with the technician by using a cataract stand reader to assist in reading the medical dictionary. She was very encouraged when she found she could see the words, and felt a greater degree of competence within herself. The cataract stand reader was lent to her for practice at home, and her proficiency with the aid increased - and so did her confidence. She began to look for work by herself and started by doing typing jobs at home, continuing at the same time to work with the technician at the clinic.

After several practice sessions at the clinic trying different aids, such as an 8x lens, projection magnifier, and a 6x lens, Mrs. B. finally felt that the 6x lens over the left eye gave her the greatest help, and the prescription for the glasses was given to her.

According to the technician, Mrs. B. was completely involved in the practice sessions, worked diligently, and derived great satisfaction from the help given.

With the 6x lens she was able to read newsprint and the medical dictionary well, seeing both the word and the definition in the dictionary.

By the end of February 1963, Mrs. B., through her own efforts, obtained a job as a medical dictaphone typist in a hospital. At last report, she had been informed that her work was eminently satisfactory and that the hospital was so pleased with her work that they would now consider hiring another visually handicapped typist.

Mrs. B.'s case, we feel, well illustrates the importance of the patient's becoming involved with the work and accepting responsibility for using his efforts to the utmost to achieve his ends. Allowing Mrs. B. to express her hostility, giving her encouragement, and showing her she was able to achieve some of her goals, helped to give her the confidence to look for a job for herself.

Children seem to quickly adapt to aids on their own. For instance, W.E., a twelve year old boy, was referred by the special education department of the school system for an evaluation in November of 1961. The diagnosis given by the referring doctor was choroidal albinism, associated with nystagmus and amblyopia. The boy had just entered the seventh grade of a junior high school and was having difficulty reading the regular size text books, as well as seeing the blackboard.

With a +8.00 add over his regular prescription he was able to read the small print with more ease. For distance viewing he tried a 6x monocular in the clinic and was able to achieve a 20/20 acuity. Since his family lived about 100 miles away from the clinic, a prescription was given for the monocular and +8.00 add to be made in an ultex bifocal for general use after the first visit.

After several months, letters were sent out by the social worker to the mother and the school, inquiring about the boy's adjustment to the new glasses and the distance aid. His mother reported that the boy used the monocular in all his classes, and outside of school for spotting things beyond his vision range. His adaptation to full use of the aid took about five days, and after that time he was able to spot quickly. The glasses prescribed enabled him to read regular textbooks by himself, and he was able to cover any assignment given without rest periods., often reading continuously up to one hour during his homework periods. Adaptation to the glasses took about one week to ten days.

The school counselor reported that although the time necessary for W.E. to complete his work was considerably longer than that of a student with no visual handicap, he could see to do this work, which was a vast improvement. The boy had no hesitancy in using his aids at any time of need in the classroom, and the students had accepted his use of them with understanding and without undue attention.

In December of 1962, a further aid was tried with the boy. The Kestenbaum system of spotting was incorporated into his present glasses by having a -20.00 sphere cemented to the top of the right lens toward the upper right hand corner and incorporated with a hand-held glass of a +5.00 lens objective. When W. becomes accustomed to it, this will be lighter and easier to use than his monocular.

Further work with children has led the clinic staff into the area of the brain-damaged child. We have been cooperating with educators to discover how we can help them with these children. The educators are working along developmental principles, i.e., assuming that the child must learn each stage of development

before going on to the next. It is felt that the child's facility with optical aids will be a reflection of his developmental skills. As yet it is too early to indicate results achieved with this group, but an awareness of the group and their visual difficulties is one of present-day consideration within the clinic.

Work with visually handicapped older individuals has been less encouraging. Older people are not so willing to adjust their reading habits and to reduce the distance from fifteen inches to four inches, even though it will make the difference between being able to read a newspaper, or not being able to.

It is extremely important that older patients are allowed to proceed at their own pace. He needs constant encouragement, without pressure, in working towards his goals. We have had some cases which have been very encouraging; the two described here show that older people can be helped.

Mr. L. and Mr. P. are men in their middle seventies who, in recent years, began to suffer from failing vision because of macular degeneration. Until their retirement both men had led active business lives, and both displayed keen and alert minds. Mr. P. was eager to try different aids for possible advantages. He had been using a 24 diopter hand magnifier to read his watch, subtitles, and advertisements. He tried various aids in the clinic, such as an 8x lens, and an 8x lens combined with a prism, and is at present working with a 10x lens. He has the 10x lens on loan at home and with it he is able to read magazine print. He also had a reading stand made according to our specifications and this enables him to have the material held more comfortably. He has worked with the visual aids technician since March and she finds him a very cooperative, eager worker. Mr. P. will continue working with the technician until the final prescription is given.

Mr. L. began using a diopter conoid lens with which he was able to read magazine advertisements. In following sessions with the technician, Mr. L. used the 8x lens, and at the last session was using the 10x lens and was able to read magazine print for forty-five minutes at a time. The opportunity to try different aids and the encouragement and support from the technician have helped both Mr. L. and Mr. P. to work toward realistic goals in their visual rehabilitation.

One of the advantages of having the low vision clinic held within the confines of a hospital has been the indoctrination of professional individuals, such as interns and residents, to the low vision work. As this work becomes familiar to them they show their acceptance of its concepts by referring eye patients to the clinic. This becomes another facet in their educational experience, and as a result, certain concepts of low vision work are incorporated into their own practice.

As the work in the clinic proceeds it is noted that usually more than one aid is needed by an individual. As the patients become familiar with the work within the clinic this concept of multiple aids is accepted. The tendency in this clinic has been to use inexpensive, unsophisticated aids, such as simple magnifiers and telescopes which can be bought from stock.

It has become evident that the general public needs to know more about the field of low vision aids. Many people come in with their hopes too high as a result of having read articles describing the tremendous changes made by low vision aids. They find it hard to accept the limits within which these aids can perform. The patient who can more clearly anticipate how he expects to be helped

gets on better than the patient who has a vague hope that something will help his vision, but who doesn't know in what area he wants the help.

There can never be a standard prescription for any patient in a low vision clinic = each patient must be treated as an individual with consideration given not only to his visual potentials and disabilities, but also to his personality in an effort to discover how these will either help or hinder him in his use and acceptance of low vision aids.

SCRIPT FOR W.T.V.S. - T.v. PROGRAM
February 19, 1965

## "FOR DOCTOR"S ONLY"

## SINAI LOW VISION CLINIC

(AUDIO)

(ANNOUNCER)

The practice of medicine may be considered a skillful blending of science and art. Medical therapy offers less than desired relief in many visually impairing diseases. The clinician today has the resources of optical technology to improve his patient's visual efficiency; and by practicing the art of medicine in its broadest sense, he can rehabilitate the partially sighted individual.

Sinai Hospital has had a Low Vision Clinic as part of the Shiffman Clinic Eye Department for over three and one-half years. Michigan State Agencies concerned with the partially sighted, in particular the Office of Vocational Rehabilitation, Division of the Blind, and the Michigan Crippled Children's Commission, Division for the Blind, gave impetus and assistance to its organization. In the first three years of its existence the Clinic was financially aided by a participating grant from the Office of Vocational Rehabilitation, Division for the Blind, Department of Health, Education and Welfare.

Here to discuss Low Vision and the work of the Low Vision Clinic is our panel consisting of members of the Eye Department of Sinai Hospital of Detroit. They are Dr. Morris J. Mintz, co-director of the Low Vision Clinic, Dr. Gary Bergman, senior resident in Ophthalmology, and Mrs. Barbara Thomas, optical aids technician.

Dr. Mintz, will you please begin.

DR. MINTZ:

Our panel will try to show how visual efficiency can be increased in patients with low visual acuity. That is, where best visual acuity in the better eye as corrected with the usual glasses is not more than 20/70. To put it another way, our clinic is concerned with visual rehabilitation. Before we demonstrate this, however, Dr. Bergman will review briefly the anatomy and physiology of vision and illustrate some of the chief causes of visual loss.

DR. BERGMAN:

Some charts and illustrations will help us explain this more easily.

The view you see now is a familiar cross-section of the eye. Light from an object enters through the clear cornea, through aqueous, through lens, through vitreous, and finally to the retina where it is imaged. The fovea with its great density of cones is the region of greatest visual acuity within the retina. The visual stimulus falling on the retina is then transmitted along the visual pathways to the cerebral cortex. Any interruption of the light path or neuro-sensory path

can reduce visual acuity. We will now consider some of the chief pathological causes of lowered visual acuity:

Scarring of the cornea can reduce visual acuity. The most common cause of corneal scarring is that of trauma and this slide illustrates the result of a burn. The next deals with a type of scarring frequently encountered in an infection, in this case a herpetic infection. There are many congenital disorders which may cause scarring, this is one. Metabolic diseases are often followed by such scarring, in this instance band keratopathy. If the cornea is clear, there still may be difficulty with visual acuity if, for instance, the pupillary opening is interfered with. Some diseases may produce a pupillary membrane which could interfere with vision. The vitreous can be involved in the lowering of vision by various types of opacities. We often see retro-lental fibroplasia in the young population group. The retina, of course, is perhaps the most frequent site of lowered visual acuity in the population group that we serve. Macular degeneration of the juvenile type as is seen in this slide has its onset in patients five to ten years of age. In our adult population frequently the onset is somewhere near the fourth decade, but most often occurs in the patient aged 60 or older.

Albinism is often encountered. Hemorrhages can interfere with retinal function. One sees them most frequently in diabetes, or vascular situations, the type such as encountered in high blood pressure. The first slide illustrates diabetes. This slide illustrates a type of fundus presented in hypertension. The flame shaped hemorrhages and exudates are typical. Chorioretinitis has a variety of etiologies. Here we present several.

Pigmentary degenerations are frequently found, the most common being retinitis pigmentosa. The fundus picture of the advanced case is unmistakable. Diseases of the optic nerve can markedly lower visual acuity. Optic atrophy may have a variety of causes: Septicemias, multiple sclerosis, sensitivity to drugs, central nervous lues, all may create a picture of optic atrophy. Glaucoma has a very typical appearance of optic atrophy. Brain tumor and brain abscess may also show signs of optic atrophy.

Visual acuity, a term that you hear mentioned frequently, simply refers to a fraction, the numerator indicating the distance of the patient from the chart and the denominator the distance from the chart a normal eye can see a given letter; for example, 20/40. This expression means that the viewing distance is 20 feet and that emmetropic eye will see that letter at forty feet. What is essential to normal visual acuity is foveal integrity. Let us see why.

Superimposed on this view of the fundus and macular area is the visual acuity to be expected when an object is imaged on the fovea and parafoveal areas. You will notice that visual acuity is at a maximum at precisely the fovea centralis. If an area only four to five degrees away from the fovea is used, visual acuity drops to a level of 20/200. It becomes obvious that a small central lesion can have a devastating effect on visual acuity. The origin of the peculiar advantage the fovea enjoys in the visual process comes about because of the density of cone population at the fovea. The realization that the fovea centralis is involved in the resolution of small detail leads one to the inescapable conclusion that when a lesion has damaged the fovea a non-foveal area must be utilized. In order to

achieve greater visual efficiency with an area which and of itself is less sensitive, magnification must be employed. The use of magnification as a means of increasing the efficiency of a patient with low vision will now be discussed by Dr. Mintz.

DR. MINTZ:

Let me tell you how we go about examining a patient in the Low Vision Clinic. First we obtain a history of the patient's visual ability and visual desires. Secondly, we do a routine ocular examination, both external and internal, and then we refract the patient in the usual routine manner for ordinary spectacles. In most cases, this has to be done primarily by retinoscopy. Then having determined the patient's best visual acuity with ordinary spectacle lenses, magnification either at distance or near is added to give the patient the best resultant visual acuity possible, for either near or for far. We have available a patient to examine, a very special patient. He's entirely electronic and is present through the courtesy and ingenuity of our producer, Mr. Dick McC am, and through him we shall be able to illustrate what a person with lowered visual acuity sees and how magnification may rehabilitate his vision.

(JOHNNY T.V.) Aside: Johnny TV is a 12-year old who suffers from macular lesion.

Dr. M. How old are you Johnny?
J. I'm 12 years old, sir.

Dr. M. How long have you been seeing poorly?
J. Gee, I don't know, maybe it was in the second grade.

Dr. M. Are you able to read regular school books?
J. Not for long, but I can read them.

Dr. About how long?
J. Oh, 20 minutes.

Dr. What happens?
J. I just get tired.

Dr. Do you hold things very close to read? Do you have to have a lot of light?
J. Yes, I guess so.

Dr. Okay, show me where you hold things.
J. Up here.

Dr. Right up to your nose?
J. Yes.

Dr. Johnny, would you like to see better?
J. Sure.

Dr. Do you have any trouble seeing the chalk board?
J. Not when I sit up front, but if the sun is shining I have a lot of trouble.

Dr. Do you have a bicycle?
J. Oh, yes.

Dr. Two-wheeler?
J. Of course.

Dr. Do you use it much?
J. Oh, all the time.

Dr. Do you ever bump into anything with your bike?
J. Not me.

Dr. Do you play baseball?
J. Yes.

Dr. What position do you play?
J. I stick to the outfield.

Dr. Are you a good fielder?
J. Pretty good.

Dr. What kind of a batter?
J. I'm good.

Dr. Well, what kind of an average do you have?
J. Maybe .350.

Dr. (Aside) Higher than that possibly. Some patients told us that he bats about .700.

Dr. Well, Johnny, let's see how well we can make you see. We're going to show you some numbers and read the ones you can see. You read the 20/200 line. Now cover the other eye and tell us if you can see this number.
J. No, the other eye is better.

Dr. Can you see these numbers? (use larger numbers)
J. Yes.

Dr. Well, let's check you for reading, now. I want you to read this large print. No, don't pull it up, keep it out here where I put it. We'll show you some larger print. Can you read this?
J. Yes.

Dr. Let's see if glasses will help.
(TO THE TV AUDIENCE) In the procedure at this point the patient has had retinoscopy performed and we find the glasses he is wearing are correct, and that no change is necessary for regular glasses.
Okay, Johnny, put your glasses on and hold the card where you can read it. Fine, is that where you always read, right up to your nose?
J. Yes.

Dr. Now, Johnny, I'm going to have you read through this special lens and tell me if it makes any difference.

(TO THE AUDIENCE) In this case, we're using a lens not to improve the patient's vision because, as you must see, he can already see at that point. However, one of his visual problems is that he tires easily when he reads. At his age he still has very strong accommodation, but using it while holding his reading near the eye to increase the image size on his retina tires him. Therefore, we are giving him a lens whose power enables him to use less of his accommodation while reading at a close distance.

Well, Johnny, you want to see things on the blackboard, too. Try holding this over your glasses.
J. Okay. Hey, that's my name!

Dr. Right! Do you ever go to ballgames or the circus?
J. Oh, yes.

Dr. Do you enjoy them?
J. Well, I really don't see well.

Dr. Well, Johnny = try looking out the window.
J. (Ad Lib appropriate remark depending on view shown)

DR. MINTZ: (DIRECTED TO THE AUDIENCE)
The examination you have just witnessed graphically illustrates how an individual with normal peripheral vision but a central lesion may have his visual efficiency increased through telescopic magnification for distance, and simple magnification for near reading. Johnny's history as he volunteered it clearly shows that his visual problems were not those of mobility but involved only critical seeing of small objects. Electronically, our TV camera not only changes its eye condition but its sex and age and Susan TV, 38, suffers not from any involvement of the retina but that of the cornea or that of the lens which lowers visual acuity even in the presence of a normal retina. For purposes of illustration, let's assume that Susan has a corneal opacity.

Dr. How long has it been since you've been able to read a newspaper, Susan?
S. About three or four years.

Dr. And you're how old, now?
S. 38.

Dr. And have you used any magnifiers or other kinds of aids to try to read a newspaper?
S. Well, I bought a magnifier and I use it sometimes.

Dr. Do you have any trouble seeing when you're out of doors?
S. Yes, I can't tell what bus is coming.

Dr. Well, Susan, let's begin our examination. Mrs. Thomas is holding a chart with some numbers on it. We'll start with your right eye and when you can see these numbers will you please read them.
S. That looks like an "8" - "9" I think, a round figure.

Dr. Good! Let's try the other eye.
S. 5 - 8, oh, I can't see those.

Dr. That's good, Susan. Let's hold this card at this distance. Can you read the top, here.
S. I can see a few.

Dr. Can you read this?
S. No not that.

Dr. Now, Susan, here's a pair of glasses I'd like you to try. They are only for reading. When you put these on, hold your reading very close. I'll show you. We'll put a strong light on the print and I think you can read.
S. Well, I can see it now, but isn't it going to be hard to hold it up this close?

Dr. It may be tiring at first to keep your hands that close to your face. What you really ought to have, Susan, is a reading stand. And here is one we recommend you use.
Now you don't have to hold the book you're trying to read. It's much easier for you to stay close to it.
S. Oh, that'll be easier. But is it all right for me to use my eyes for reading?

Dr. Susan, you're eyes are meant to be used. You cannot hurt them in any way by any amount of seeing that you do.
S. What will I do about TV

Dr. Susan, there are distance telescopic magnifiers. Here's one I want you to try. It clips right over your glasses. Aim your head in the direction you want to see and you'll see much better through it than you can with just your regular glasses.
S. That's much better, doctor.

Dr. Susan, you should have much better vision with these special glasses for reading, and the telescopic magnifier. The distance telescope can't be used for walking, but when you're seated someplace or standing still, it can help you see a greater distance.

DR. MINTZ: (TO THE TV AUDIENCE)

This patient has shown that where there is an opacity of one of the refracting media, magnification can improve the individual's vision to the point where newsprint can often be read adequately. There is even the possibility of some improvement in distance vision.

There is one general type of visual problem for which aids usually offer little. Such a case is one of advanced glaucoma in which the visual field is very limited or retinitis pigmentosa in which the field likewise is very limited. Our electronic patient now illustrates this condition.

You can see that the unimpaired visual field is small. If we now try to magnify it and we'll do it now -- less is seen and all the advantages of magnification are lost. The examination procedures that have been demonstrated have employed relatively simple optical devices. There is a place, however, for more sophisticated types of low vision aids. Many of them are designed to fit specific problem situations. If there is a need for a bifocal arrangement utilizing greater magnification, there are bifocal types. Here is one device. It is even possible to incorporate a standard spectacle correction and an extremely strong bifocal correction plus a miniature telescope all in a single lens. Moreover, it may be placed into quite ordinary frames. These glasses prove quite satisfactory cosmetically.

There is more to treating a low vision patient than just handing him a low vision aid. Mrs. Thomas will discuss this aspect. She will stress how important it is that the individual be encouraged and taught in the use of his low vision aid. Fortunately, children are adaptable because they are adept in learning any new experience. Older people must be encouraged to read at a close distance to their eyes.

(MRS. THOMAS)

(FINAL WRAP-UP BY DR. MINTZ)

The proper utilization of low vision aids requires a team approach to the problem of impaired visual acuity. We have employed social workers to make the liaison between employer and patient, school and child, even in enlisting the aid of public utilities in modifying the appliances of the low vision patient. Parents often have to be indoctrinated as to how visual aids may help and teachers must understand how low vision devices will permit the child to operate in the classroom. All who deal with the patient must understand that it is safe and desirable for the individual to utilize his vision. We are not saving the patient's vision - we are engaged in helping him utilize it. There are times when optical aids do not provide significant improvement despite this. There are often gadgets and tools, such as large playing cards, special measuring devices, fever thermometers and the like, which can be furnished to the patient to lessen the crippling impact of poor vision. The full resources of the community should be enlisted in this work of visual rehabilitation. The specific contribution service the Low Vision Clinic has made, and hopefully we trust will continue to make, is that careful consideration of low vision patient needs, and time to meet them, is provided. We have demonstrated that these needs can best be met with a team approach and as part of a hospital-based eye department.

WAYNE COUNTY MEDICAL SOCIETY
1010 Antietam Road
Detroit, Michigan 48207

March 3, 1965

Dear Doctor:

We are indebted to you for your participation in the February 19, "For Doctor's Only" television program. We realize a great deal of time is spend in preparing these telecasts.

The Medical Education Committee of our Society wishes to thank you for your contribution to this worthwhile educational program.

Sincerely yours,

Nelson M. Taylor, M.D.
Chairman
Subcommittee on Television Program.

METROPOLITAN SOCIETY FOR THE BLIND, INC.

1401 Ash Street
Detroit, Michigan 48208

February 11, 1966

Dear Doctor:

Your December 27th letter was a high point of interest to me upon my return from vacation.

Here you identify a classic dilemma: Adequate compensation for loss on one horn and unjust penalty of employers on the other. Often a Solomon is required to resolve this problem with justice for all parties. Certainly the kind of penalty you mention militates seriously against job placement efforts. Frankly, I don't begin to have the complete answer, but I wish that all good minds like yours were working on it.

For some time, we have hoped to plan a meeting between some of our staff and yours. One of the things we want to discuss is the possibility of closer collaboration between our people who are working in mobility and yours who are working with the problems of aiding low vision. Also, referral for low vision service sometimes becomes unbelievably complex. However, present changes in our mobility teaching staff suggest that it might be wise to wait until expected new people are on hand so that they can benefit from our discussion and conclusions. As soon as possible, I will give you a call to see if we can find a time of mutual convenience.

Sincerely,

McAllister Upshaw
Executive Director

WAYNE STATE UNIVERSITY
COLLEGE OF EDUCATION
Detroit 2, Michigan

DEPARTMENT OF SPECIAL EDUCATION
AND VOCATIONAL REHABILITATION

October 17, 1963

Dear Doctor:

As major advisor for students preparing teachers of partially sighted, I want to take this opportunity to thank you for your contribution to the Advanced Workshop for Teachers of the Partially Seeing of Wayne State University, August 5-16.

I am extremely apologetic for the delay and I shall look forward to our next contact in the near future, I hope.

Sincerely yours,

Gwen Retherford
Associate Professor
Department of Special Education
and Vocational Rehabilitation

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, INC.
16 East 40th Street
New York 16, N.Y.

October 14, 1963

Dear Doctor:

This is my first opportunity to thank you more formally for your contribution to the success of the Wayne State University Advanced Workshop for Teachers of the Partially Seeing.

The National Society is most appreciative of your help as, I am sure, are all of those who participated in the course.

With best wishes to all of you and, again, my thanks.

Sincerely,

Helen Gibbons, M.A.
Consultant in Education

THE CIRCUIT COURT FOR
THE THIRD JUDICIAL CIRCUIT OF MICHIGAN

HORACE W. GILMORE
Judge

August 6, 1963

Dear Doctor:

Permit me to take this opportunity to thank you for all the kindness you showed to my father and me in Sinai Hospital. I am sure your professional skill and advice and encouragement will greatly aid my father in his seeing.

I do appreciate everything you did. Best regards.

Yours very sincerely,

Horace W. Gilmore

WAYNE COUNTY INTERMEDIATE SCHOOL DISTRICT
301 City-County Building
Detroit, Michigan 48226

SPECIAL SERVICES DEPARTMENT
October 4, 1966

Dear Doctor:

I want to thank you and your colleagues for the excellent and thorough evaluation which you made of children seen at the clinic on September 21st. Of the 31 children who were seen there were recommendations for some kind of follow up in 18 cases. Those youngsters who were without any vision and indicated no particular medical problems will not have to be seen again.

Following the clinic each director of special education was sent a list of the children from his district who were seen at the clinic with comments relative to recommendations for follow up. The local director of special education then was requested to ask his school nurse or Public Health Nurse to do the necessary follow up on these recommendations. When this follow up has been accomplished the local director of special education has been asked to communicate this information to the director of special education in whose district the child is attending school.

All of the feedback about your participation in this clinic was extremely favorable from teachers, parents and administrators. As you would expect there were some negative comments relative to scheduling and the nuts and bolds of the operation. The concept and operation of this clinic will be written up and shared with other professionals who are attempting a more adequate and sophisticated look at children.

I would like the opportunity to sit down with you and discuss your impressions of this kind of operation as well as the kinds of information which you perceive necessary in order for us to make more adequate educational plans for children.

Again, thank you for demonstrating the new approach in providing services for children.

Sincerely,

James Greiner, Consultant
Physical and Sensory Handicaps

METROPOLITAN SOCIETY FOR THE BLIND, INC.
1401 Ash Street
Detroit, Michigan 48208

March 24, 1966

Dear Doctor:

This is a brief note to express our appreciation to you for allowing us to visit your clinic on March 21, 1966.

The actual observation of the functioning of your department will be valuable to us in interpreting the role of the Low Vision Clinic to MSB clients.

Again, thank you.

Very truly yours,

(Mrs.) Helen A. Johnson
Group Worker

## VISITORS TO THE LOW VISION CLINIC DURING A ONE YEAR PERIOD

Mr. Arthur Eisenberg, Representative,
American Foundation for the Blind.

Mr. James Greiner, Teaching Counselor,
Horace Mann School, Detroit

Mr. Gus Kaselimis, Teacher Counselor,
Redford Union School

Miss Anita Miller, Teacher,
Livonia, Michigan

Mr. & Mrs. Ralph Peabody, Teacher Counselors,
River Rouge, Michigan

Mr. James Bommarito, Teacher Consultant,
Macomb County, Michigan

Dr. Horace Westen, Ophthalmologist,
Eye Consultant, Detroit Board of Education

Mrs. Margaret Polzien, Acting Supervisor,
Classes for Blind & Partially Seeing,
Detroit School System

Mr. Edward Radke,
State Vision Consultant,
State Department of Health

Miss Rhoda Wickwire, Public Health Nurse,
Newport, Michigan

Miss McVey, Crafts Teacher for Handicapped,
Detroit Board of Education

Miss Elaine Shepherd, Braille Teacher,
Detroit Board of Education

Mrs. Everhard, Public Health Nurse,
Ypsilanti, Michigan

Mrs. Lambie, Sight Saving Teacher,
Ypsilanti, Michigan

Miss Sheilah Jackson, Supervisor,
Division of Services to Blind

Mr. William Simon, Counselor,
Division of Services to Blind

Miss Betty Jacobs, Counselor,
Division of Services to the Blind

Miss Darlene Ryor, Sight Saving Teacher,
Adams School, Livonia, Michigan

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NOTIFICATION OF THE LOW VISION CLINIC APPEARED IN FOLLOWING PUBLICATIONS:

American Medical Association Journal
Detroit Medical News
State Society Medical Journal

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